DIXIE STATE COLLEGE
SMITHS COMPUTER CENTER LABORATORY
RE-LIGHTING

CONSTRUCTION PLANS
LOCATED IN SAINT GEORGE, UTAH

DFCM PROJECT NO. 06120640

State of Utah–Department of Administrative Services

DIVISION OF FACILITIES CONSTRUCTION
AND MANAGEMENT
4110 State Office Building/Salt Lake City, Utah 84114/538-3018

SEPTEMBER 2006

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DRAWINGS INDEX

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DRAWN BY: S. REMBER
CHK'D BY: L. REMBER

SHEET TITLE
COVER SHEET
SHEET NUMBER
GI101
SHEET 1 OF 5

FIXTURE SCHEDULE

TYPE	DESCRIPTION	CATALOG NUMBER	VOLTS	LAMPS
A	2x4 6–LAMP ENCLOSED FLUORESCENT HIGH BAY WITH SPECULAR REFLECTOR, HANGER & CABLE KIT WITH (1) TWO & (1) FOUT LAMP BALLAST	COLUMBIA: LHC24–654–FAA19M4R–EB5UNV–LHHB–GLH5 HOLOPHANE: STT24XB–H24–K46–MK–3–2	277	(6) FP54/835/HO/ECO
B	6" RECESSED DOWNLIGHT WITH CLEAR DISC W/ FROSTED CENTER	PRESCOLITE: TBX–TO95SESCMFC	120	(1) CF32/835

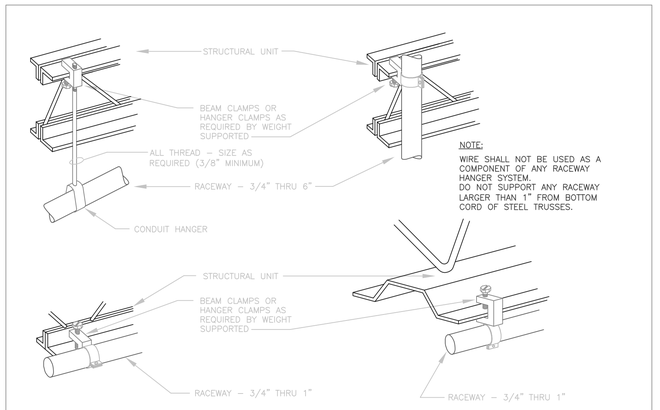

DIAGRAM H003 TYPICAL RACEWAY SUPPORT METHODS

NTS

ELECTRICAL SYMBOL SCHEDULE

1. SEE FIXTURE SCHEDULE FOR TYPE, MOUNTING AND WATTAGE.
2. HEIGHT MEASURED TO TOP LINE OF THE BOX FROM THE FINISH FLOOR.
3. REFER TO DRAWINGS FOR DIRECTIONAL ARROWS.
4. SUBSCRIPT KEYS SWITCH TO FIXTURES CONTROLLED.
5. NEMA TYPE 'ND' NON–FUSED UNLESS NOTED 'F' (FUSED). USE 'HD' 480 V.
6. HEIGHT TO BE THE LOWER OF EITHER 80" A.F.F. OR 6" BELOW CEILING.
7. PROVIDE H.O.A. AND S.S. PUSHBUTTONS AS REQUIRED.
8. DOUBLE ARROWS DENOTE A DOUBLE FACE UNIT.
9. COORDINATE WITH MILLWORK SHOP DRAWINGS AND ELEVATIONS FOR HEIGHT.
10. SUBSCRIPT DENOTES NEMA CONFIGURATION.
11. HEIGHT MEASURED TO BOTTOM OF THE BOX FROM FINISH FLOOR.

STANDARD MOUNTING HEIGHT UNLESS OTHERWISE NOTED ON PLANS

SYMBOL	DESCRIPTION	MOUNTING HEIGHT	NOTES
	ONE CIRCUIT, TWO WIRE HOME RUN TO PANEL		
	2 CIRCUIT, 3 WIRE, COMMON NEUTRAL HOME RUN		
	3 CIRCUIT, 4 WIRE, COMMON NEUTRAL HOME RUN		
	CONDUIT RUN CONCEALED IN WALL OR CEILING		
	CONDUIT RUN CONCEALED IN FLOOR OR GROUND		
	CONDUIT UP		
	CONDUIT DOWN		
	CONDUIT STUB LOCATION	CAP CONDUIT	
	CEILING LIGHT FIXTURE	CEILING	1.
	WALL LIGHT FIXTURE	AS NOTED	1.
	RECESSED DOWNLIGHT FIXTURE	CEILING	1.
	FLUORESCENT LIGHT FIXTURE	AS NOTED	1
	FLUORESCENT EGRESS LIGHT FIXTURE	AS NOTED	UNSWITCHED
	FLOOD OR TRACK FIXTURE	AS NOTED	
	CEILING MOUNTED EXIT LIGHT	CEILING	1.3.8.
	WALL MOUNTED EXIT LIGHT	AS NOTED	1.3.8.
S	SINGLE POLE SWITCH	+4'–0"	2.
S^D	SINGLE POLE SWITCH	+4'–0"	4. 2.
S^3	THREE–WAY SWITCH	+4'–0"	2.
S^4	FOUR–WAY SWITCH	+4'–0"	2.
S^K	KEY OPERATED SWITCH	+4'–0"	2.
S	MOMENTARY CONTACT SWITCH, CENTER POSITION OFF	+4'–0"	2.
J	JUNCTION BOX ('F' IN FLOOR)	AS NOTED	
	PANEL BOARD	TOP AT +6'–0"	
	MAIN DISTRIBUTION PANEL		
842	ARCHITECTURAL ROOM NUMBER		
A	LIGHT FIXTURE (LETTER DESIGNATES TYPE)		
EQ 34	EQUIPMENT NUMBER		

GENERAL NOTES

1. CONSULT ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL LIGHTING FIXTURES.
2. VERIFY ALL EQUIPMENT DIMENSIONS AND LOCATIONS BEFORE BEGINNING ROUGH IN. CONSULT ALL APPLICABLE CONTRACT DRAWINGS AND SHOP DRAWINGS TO INSURE NEC CODE CLEARANCES REQUIRED AROUND ALL ELECTRICAL EQUIPMENT.
3. CONTRACTOR SHALL VERIFY ALL ELECTRICAL LOADS (VOLTAGE, PHASE, CONNECTION REQUIREMENTS, ETC.) OF EQUIPMENT FURNISHED UNDER DIVISION 15 WITH APPROVED MECHANICAL SHOP DRAWINGS BEFORE BEGINNING ROUGH IN.
4. SEE SPECIFICATIONS FOR REQUIRED COORDINATION MEETINGS WITH MECHANICAL AND CEILING CONTRACTORS.
5. SEE APPLICABLE SHOP DRAWINGS FOR ROUGH IN LOCATION OF ALL EQUIPMENT, WIRING DEVICES, ETC. WHERE APPLICABLE MOUNT ALL WIRING DEVICES ABOVE BACK SPLASH EXCEPT THOSE SERVING UNDER COUNTER EQUIPMENT.
6. SEE SPECIFICATION FOR ENERGY SAVING LAMP AND BALLAST REQUIREMENTS.
7. FINISHES OF ALL LIGHT FIXTURES SHALL BE AS SELECTED BY ARCHITECT.
8. THE ELECTRICAL CONTRACTOR SHALL NOTIFY AND COOPERATE WITH THE MECHANICAL CONTRACTOR SUCH THAT NO PIPING, DUCTS, OR EQUIPMENT FOREIGN TO THE OPERATION OF THE ELECTRICAL EQUIPMENT SHALL BE PERMITTED TO BE INSTALLED IN, ENTER OR PASS THRU ELECTRICAL ROOMS OR SPACES, OR ABOVE OR BELOW ELECTRICAL EQUIPMENT IN OTHER AREAS.
9. ELECTRICAL BOXES SHALL NOT BE LOCATED IN MASONRY COLUMNS IN BRICK WALLS OR IN GROUTED CELLS ADJACENT TO OPENINGS. COORDINATE LOCATION OF BOXES WITH MASONRY CONTRACTOR.
10. ALL PENETRATIONS OF FIRE RATED FLOORS, WALLS, AND CEILINGS SHALL BE SEALED WITH APPROVED MATERIAL TO MAINTAIN FIRE RATING OF SURFACE PENETRATED.
11. CIRCUITS EXTENDING OVER 70' FOR 120 VOLT AND 165' FOR 277 VOLT 20 AMP CIRCUITS SHALL BE RUN WITH MINIMUM #10 CONDUCTORS.

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CHK'D BY: L. REMBER

SHEET TITLE

SYMBOLS, NOTES AND SCHEDULES

SHEET NUMBER

GI102

SHEET 2 OF 5

Permit #

Permit Date

COMcheck Software Version 3.1 Release 1

Lighting and Power Compliance Certificate

Standard 90.1-2004

Report Date: 09/05/06

Data filename: S:\2006\187a\Lighting\Untitled.cok

Section 1: Project Information

Project Title: Smiths Computer Laboratory

Construction Site:
Dixie State College
St. George, UT 84770

Owner/Agent:

Designer/Contractor:

Section 2: General Information

Building Use Description by: Activity Type
Project Type: New Construction

Activity Type(s)	Floor Area
Common Space Types: Classroom/Lecture/Training	7160

Section 3: Requirements Checklist

Interior Lighting:

☐ 1. Total actual watts must be less than or equal to total allowed watts.

Allowed Watts	Actual Watts	Complies
10024	9420	YES

☐ 2. Exit signs 5 Watts or less per side.

Exterior Lighting:

☐ 3. Comply with Sections 9.4.4 and 9.4.5 of 90.1-2004 and attach documentation.

Controls, Switching, and Wiring:

☐ 4. Independent manual or occupancy sensing controls for each space (remote switch with indicator allowed for safety or security).

☐ 5. Occupants sensing control in class rooms, conference/meeting rooms, and employee lunch and break rooms.
Exceptions:
Spaces with multi scene control; shop classrooms, laboratory classrooms, and preschool through 12th grade classrooms.

☐ 6. Automatic shutoff control for lighting in >5000 sq.ft buildings by time-of-day device, occupant sensor, or other automatic control.
Exceptions:
24 hour operation lighting; patient care areas; where auto shutoff would endanger safety or security.

☐ 7. Master switch at entry to hotel/motel guest room.

☐ 8. Separate control device for display/accent lighting, case lighting, task lighting, nonvisual lighting, lighting for safe, and demonstration lighting.

☐ 9. Photocell/astronomical time switch on exterior lights.

Exceptions:
Covered vehicle entrance/exit areas requiring lighting for safety, security and eye adaptation.

☐ 10. Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).
Exceptions:
Electronic high-frequency ballasts;
Luminaires not on same switch;
Recessed luminaires 10 ft. apart or surface/pendant not continuous;
Luminaires on emergency circuits.

Voltage Drop:

☐ 11. Feeder conductors have been designed for a maximum voltage drop of 2 percent.

☐ 12. Branch circuit conductors have been designed for a maximum voltage drop of 3 percent.

Section 4: Compliance Statement

Compliance Statement: The proposed lighting design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed lighting system has been designed to meet the Standard 90.1-2004 requirements in COMcheck Version 3.1 Release 1 and to comply with the mandatory requirements in the Requirements Checklist.

Principal Lighting Designer-Name _____ Signature _____ Date _____

Section 5: Post Construction Compliance Statement

Record Drawings and Operating and Maintenance Manuals

Construction documents with record drawings and operating and maintenance manuals provided to the owner.

Permit #

Permit Date

COMcheck Software Version 3.1 Release 1

Lighting Application Worksheet

Standard 90.1-2004

Report Date:

Data filename: S:\2006\187a\Lighting\Untitled.cok

Section 1: Allowed Lighting Power Calculation

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B x C)
Common Space Types: Classroom/Lecture/Training	7160	1.4	10024
		Total Allowed Watts =	10024

Section 2: Actual Lighting Power Calculation

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C #of Fixtures	D Fixture Watt	E (C X D)
Linear Fluorescent 1: A: 2x4 Fluorescent high bay / 46" T5 54-HW / Electronic	6	28	325	9100
Compact Fluorescent 1: B: 6" Recessed down light / Triple 4-pin 32W / Electronic	1	10	32	320
			Total Actual Watts =	9420

Section 3: Compliance Calculation

If the Total Allowed Watts minus the Total Actual Watts is greater than or equal to zero, the building complies.

Total Allowed Watts =	10024
Total Actual Watts =	9420
Project Compliance =	604

Lighting PASSES: Design 6% better than code.

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CHK'D BY: L. REMBER

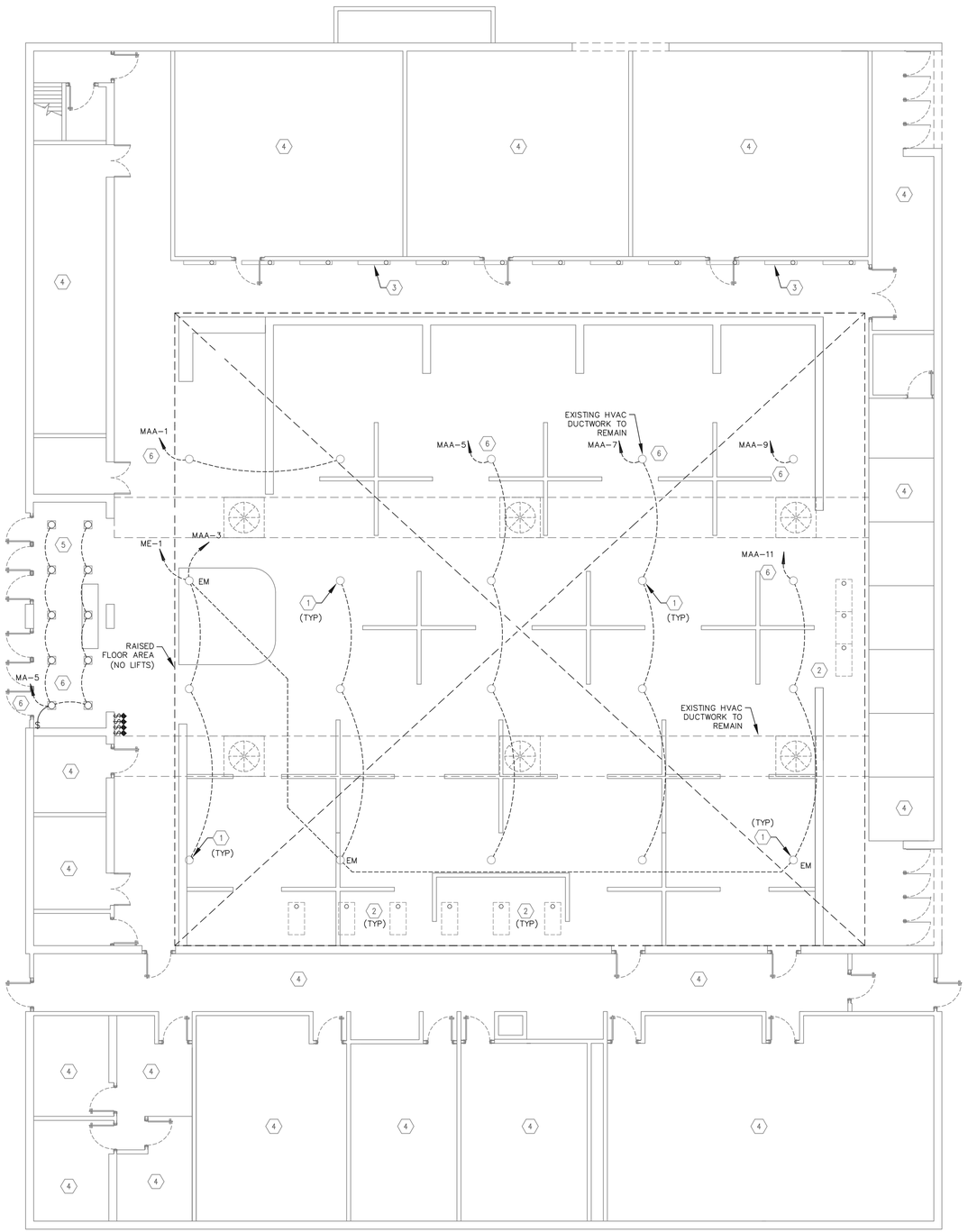
SHEET TITLE

LIGHTING COMPLIANCE CERTIFICATE

SHEET NUMBER

GI103

SHEET 3 OF 5



PLAN NORTH

DEMOLITION PLAN
1/8"=1'-0"
0 4' 8' 16'

SHEET KEYNOTES

1. EXISTING 400 WATT HALIDE HIGH BAY FIXTURES TO BE DISCONNECTED REMOVED AND RETURNED TO OWNER. EXISTING SWITCHING AND CIRCUITING TO BE REUSED.
2. EXISTING 2X4 PENDANT MOUNTED FLUORESCENT LIGHT FIXTURES TO BE DISCONNECTED REMOVED AND RETURNED TO OWNER.
3. EXISTING WALL MOUNTED FLUORESCENT FIXTURES TO REMAIN MAINTAIN CIRCUITING.
4. EXISTING LIGHTING IN THIS AREA TO REMAIN MAINTAIN CIRCUITING.
5. EXISTING INCANDESCENT RECESSED DOWNLIGHTS TO BE DISCONNECTED, REMOVED AND REPLACED. MAINTAIN EXISTING SWITCHING AND CIRCUITING.
6. EXISTING CIRCUITING INDICATED IS BASED IB AS-BUILT DRAWINGS AND IS FOR REFERENCE ONLY. FIELD VERIFY EXACT SWITCHING AND CIRCUITING PRIOR TO BID.

DEMOLITION NOTES

1. COORDINATE ALL NEW ELECTRICAL EQUIPMENT REQUIREMENTS AND MAKE CONNECTION TO EXISTING SYSTEMS. THIS INCLUDES LIGHTING, POWER, SIGNAL, RACEWAY AND OTHER SYSTEMS INCLUDED UNDER DIVISION 16.
2. RELOCATE, REWIRE AND/OR RECONNECT EXISTING ELECTRICAL DEVICES AND/OR EQUIPMENT THAT FOR ANY REASON OBSTRUCTS CONSTRUCTION.
3. CONCEAL ALL RACEWAY AND WIRING IN EXISTING WALLS, CEILINGS, FLOORS, ETC. EXCEPT WHERE THE USE OF SURFACE METAL RACEWAYS (E.G. WIRE MOLD) IS INDICATED ON DRAWINGS OR IN SPEC.
4. EXISTING RACEWAYS MAY BE REUSED (IN PLACE) WHERE POSSIBLE, AND WHERE IN COMPLIANCE WITH THE SPECIFICATIONS AND THE INTENT OF THE CONTRACT DOCUMENTS. INSURE INTEGRITY OF EXISTING RACEWAY BEFORE REUSE.
5. REMOVE ALL RACEWAYS, CONDUCTORS, BOXES, DEVICES, EQUIPMENT, ETC. THAT ARE NOT TO BE REUSED.
6. REMOVE EXISTING LIGHT FIXTURES, PLACE IN CARTON, LABEL APPROPRIATELY, AND RETURN TO OWNER, OR PROPERLY DISPOSE OF FIXTURES THAT THE OWNER CHOOSES NOT TO KEEP.
7. DO NOT PENETRATE STRUCTURAL ELEMENTS OF FLOORS, WALLS, CEILINGS, ROOFS, ETC.
8. DISCONNECT AND RECONNECT ANY/ALL FIXTURES, DEVICES, EQUIPMENT, ETC. REQUIRED FOR PROPER COMPLETION OF THE WORK.

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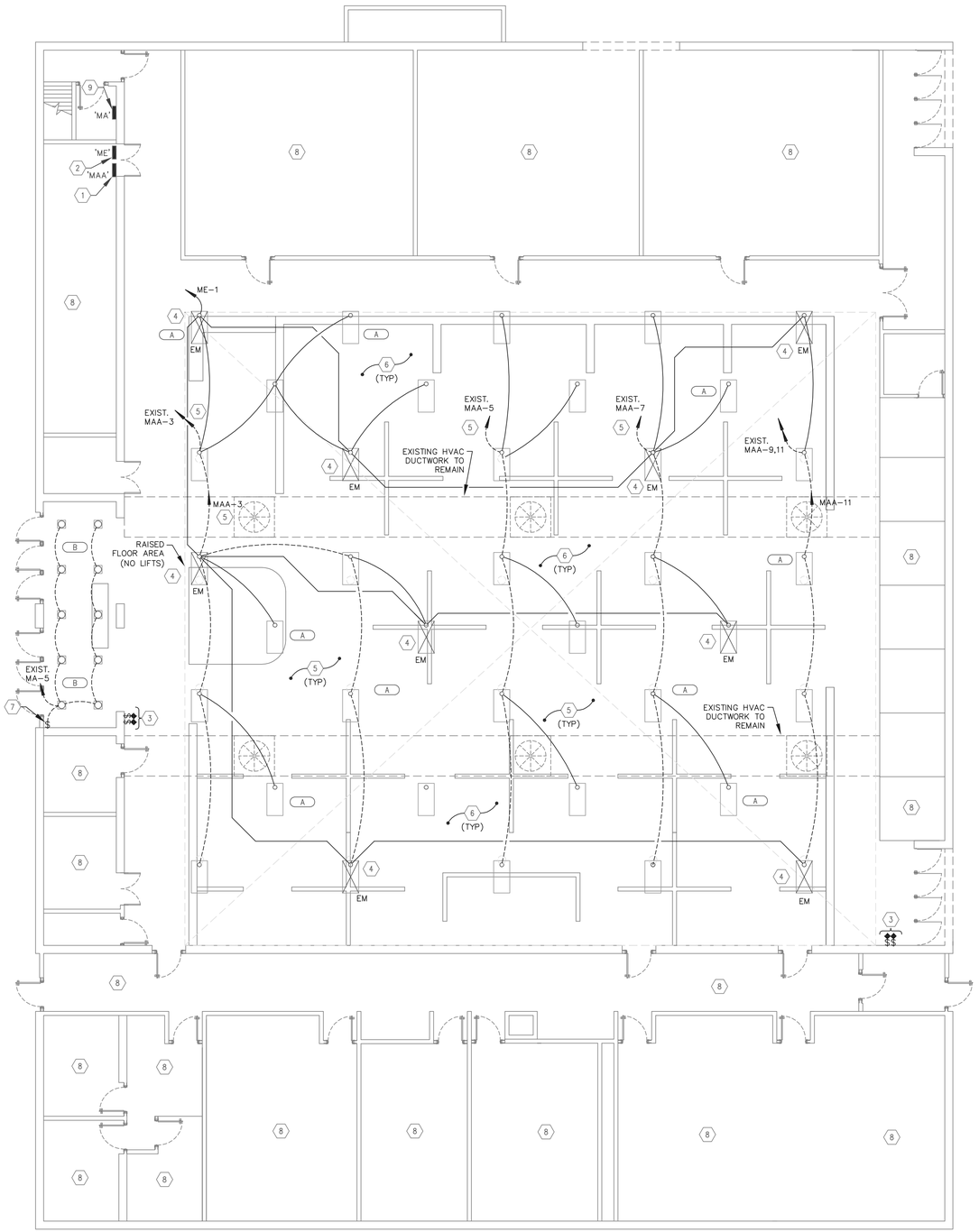

PLAN NORTH

LIGHTING PLAN
1/8"=1'-0"

0 4' 8' 16'

SHEET KEYNOTES

1. EXISTING 277/480 VOLT PANEL 'MAA' LOCATED IN SECOND LEVEL MECHANICAL ROOM. EXISTING 277 VOLT LIGHTING CONTACTORS LOCATED IN ENCLOSURE BELOW PANEL TO BE REUSED.
2. EXISTING 277/480 VOLT EMERGENCY PANEL 'ME' LOCATED IN SECOND LEVEL MECHANICAL ROOM.
3. PROVIDE (2) NEW 30 AMP, DOUBLE THROW, CENTER OFF MOMENTARY CONTACT SWITCHES FOR CONTROL OF EXISTING LIGHTING CIRCUITS MAA-1,3,5,7,9,11. PROVIDE NEW STAINLESS STEEL 4-GANG COVER PLATE FOR EXISTING BOX.
4. PROVIDE 3/4" CONDUIT WITH 2 #12 THHN CU. & 1 #12 GROUND AS REQUIRED AND CONNECT FOUR LAMP PORTION OF LIGHT FIXTURE INDICATED INTO EXISTING EMERGENCY CIRCUIT.
5. PROVIDE TWO SWITCH LEGS TO EACH NEW 2X4 , 6-LAMP FLUORESCENT HIGH BAY FIXTURE INSTALLED. ONE SWITCH LEG SHALL CONTROL 2-LAMP PORTION AND ONE SWITCH LEG SHALL CONTROL 4-LAMP PORTION (EXCLUDING EMERGENCY FIXTURES).
6. EXISTING CONDUIT AND WIRING MAY BE REUSED (IN PLACE) WHERE POSSIBLE. PROVIDE NEW CONDUCTORS FOR SWITCH LEGS AND TRAVELERS. PROVIDE COLORS FOR SWITCH LEGS AND TRAVELERS WITCH IS DIFFERENT FROM CIRCUIT CONDUCTORS. DISCONNECT AND REMOVE ALL EXISTING CONDUIT THAT IS NOT TO BE REUSED. PAINT ALL NEW INSTALLED CONDUIT TO MATCH ADJACENT SURFACE.
7. PROVIDE NEW 20 AMP TOGGLE SWITCH AND STAINLESS STEEL COVER PLATE.
8. EXISTING LIGHTING TO REMAIN. MAINTAIN EXISTING SWITCHING AND CIRCUITING.
9. EXISTING 120/208 VOLT PANEL 'MA' LOCATED IN SECOND LEVEL MECHANICAL ROOM.

GENERAL NOTES:

1. COORDINATE REMOVAL AND INSTALLATION OF LIGHT FIXTURES WITH EXISTING FURNITURE SYSTEM WHICH IS TO REMAINING PLACE DURING CONSTRUCTION.

2. MECHANICAL LIFTS ATE NOT ALLOWED ON RAISED FLOOR SYSTEM. ANY DAMAGE TO RAISED FLOOR SYSTEM DURING CONSTRUCTION IS THE CONTRACTORS RESPONSIBILITY.

3. RELOCATION OF FURNITURE SYSTEM OR COMPUTER STATIONS REQUIRED DURING CONSTRUCTION MUST BE APPROVED BY OWNERS REPRESENTATIVE PRIOR TO COMMENCING WORK.

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